**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 16 | STRAND: Number and Algebra | **SUB-STRAND:** FRACTIONS & DECIMALS 2 | **WORKING MATHEMATICALLY:** MA3-1WM; MA3-2WM; MA3-3WM |
| OUTCOMES: MA3-7NA | **Compares, orders and calculates with fractions, decimals and percentages.** |
| **CONTENT:**  | **Multiply and divide decimals by powers of 10 (ACMNA130)**recognise the number patterns formed when decimals are multiplied and divided by 10, 100 and 1000 CTmultiply and divide decimals by 10, 100 and 1000use a calculator to explore the effect of multiplying and dividing decimals by multiples of 10 (Reasoning) |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * <http://www.bbc.co.uk/schools/gcsebitesize/maths/number/decimalsrev3.shtml>

This is an online quiz.  |
| WARM UP / DRILL | * Count by 10s to 100

* Count y 100s to 1000
* Count by 1000s to 1,000,000
* See attached sheet labelled Warm Up Activity.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Fred Glitz goes to the shop and sees apples on sale for $1.57 per kg. How much does Fred pay for 10 kgs? How much would he pay for 100 kgs? |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
 |
| RESOURCES | CalculatorsComputers with Internet access |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * **Number Patterns**

Students are given a table such as: They are asked to continue the pattern and describe the number pattern created. Students are encouraged to create further number patterns and are given access to a calculator. Further number patterns could include: Possible questions include: ❚ \_what happens if you multiply a number by a multiple of ten? ❚ \_what happens if you divide a number by a multiple of ten? ❚ \_can you devise a strategy for multiplying by a multiple of ten? ❚ \_can you devise a strategy for dividing by a multiple of ten? When we divide by 10 the number becomes smaller by 1 place value.When we divide by 100 the number becomes smaller by 2 place values.When we divide by 1000 the number becomes smaller by 3 place values.Look what happens to 45 when we apply these rules:**45 ÷ 10 = 4.5 45 ÷ 100 = 0.45 45 ÷ 1000 = 0.045** | LEARNING SEQUENCERemediationS2 or Early S3 |  |
| LEARNING SEQUENCES3 | * Number - Fractions: Decimals – multiplying decimals x 10, x 100, x 1000
* Investigation:

<http://www.themathpage.com/arith/multiply-by-powers-of-10.htm#q1><http://www.ixl.com/math/grade-6/multiply-and-divide-decimals-by-powers-of-ten>* Demonstrate how to use a calculator to complete
 |
| LEARNING SEQUENCEExtension Early S4 | * Write an algorithm that would show how to multiply by 1 million.
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| **EVALUATION & REFLECTION** | **Student Engagement: Resources:****Achievement of Outcomes: Follow-up:** |